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# PLANETARY PHENOMENA FOR JANUARY AND FEBRUARY, 1907.

By Malcolm McNeill.

PHASES OF THE MOON, PACIFIC TIME.

| | | | | | |
|---|---|---|---|---|---|
| Last Quarter. | Jan. 7, | $6^h 47^m$ A.M. | Last Quarter. | Feb. 5, | $4^h 52^m$ P.M. |
| New Moon.... | " 13, | 9 57 P.M. | New Moon.... | " 12, | 9 43 A.M. |
| First Quarter.. | " 21, | 12 42 A.M. | First Quarter. | " 19, | 8 35 P.M. |
| Full Moon.... | " 29, | 5 45 A.M. | Full Moon.... | " 27, | 10 23 P.M. |

The Earth is in perihelion on January 1st, shortly before midnight.

There will be two eclipses during January. The first is a *total eclipse of the Sun* January 13-14th, invisible in the United States, as it occurs during the night. The path of totality is wholly confined to the eastern hemisphere, extending from a point north of the eastern end of the Black Sea southeast, and then northeast, ending in Siberia. The duration of totality is short,—less than two and a half minutes at the point where it is a maximum. The second is a *partial eclipse of the Moon* in the early morning of January 29th. The beginning only is visible in the eastern part of the United States. The end of the eclipse occurs shortly before sunrise in the extreme western part of the country, and the whole eclipse may be seen, except the penumbral portion. The principal phases are as follows, Pacific time:—

| | | | |
|---|---|---|---|
| Moon enters penumbra, | January | 29, | $2^h 46^m$ A.M. |
| Moon enters shadow, | " | " | 4 6 A.M. |
| Middle of the eclipse, | " | " | 5 38 A.M. |
| Moon leaves shadow, | " | " | 7 10 A.M. |
| Moon leaves penumbra, | " | " | 8 30 A.M. |

At the time of maximum obscuration about seven tenths of the Moon's diameter is eclipsed.

*Mercury* is a morning star throughout January, having passed greatest west elongation on December 18th. It rises about an hour and a quarter before sunrise on January 1st, and may be seen in the early morning twilight for a few days, but it soon draws too near the Sun to be seen. It passes superior conjunction with the Sun on February 2d and becomes an evening star, but sets less than one hour after sunset until the last third of the month. At the end of February it has nearly reached its greatest east elongation, and sets about an hour and a half after sunset. It may then be easily seen in the evening twilight on a clear night. The elongation is not as great as the average greatest, as the planet is in perihelion on February 27th, only two or three days before the time of greatest elongation. *Mercury* is in conjunction with *Saturn,* passing 1° 40′ north of the latter on the night of February 20th. Both planets then set about an hour after sunset, but they may possibly be seen if the weather is unusually clear.

*Venus* is a morning star, rising about three hours before sunrise throughout January. The interval shortens to less than two hours and one half by the end of February. It reaches its greatest west elongation (46° 53′) on the evening of February 8th, and begins to slowly approach the Sun. It attains its greatest brightness on January 4th, and for some weeks about that time it will be bright enough to be seen in full sunlight.

*Mars* rises at about half-past 2 on January 1st and about an hour earlier by the end of February. During the two months it moves about 34° eastward and 8° southward through *Libra* and *Scorpio.* On January 8th it passes less than 1° north of the third-magnitude star *α Libræ,* on February 8th it passes south of the third-magnitude star *β Scorpii* at an apparent distance of less than half the Moon's diameter, and on February 18th it passes about 5° north of the first-magnitude star *Antares, α Scorpii.* It is now approaching the Earth quite rapidly, the distance diminishing more than fifty millions of miles during January and February. Its brightness nearly doubles from January 1st to February 28th, and at the latter date is about four times as great as it was at its minimum in the summer of 1906. It will be brighter than the average first-magnitude star at the end of February; but even then it will be only one ninth as bright as at the coming opposition next July.

*Jupiter* passed opposition with the Sun on December 28th, and is therefore in fine position for observation, being above the horizon most of the night. It sets a little before 5 A.M. on February 1st, and a little before 3 A.M. on February 28th.

It is in *Gemini,* and moves westward about 6° with a continually diminishing motion until February 25th.

*Saturn* is in the southwestern sky in the evening, setting about half-past 9 on January 1st, and only half an hour after sunset at the end of February. It will then, and for a fortnight before, be too near the Sun for a naked-eye view. As seen in a telescope, the rings are closing up very rapidly, and they will be out of sight when *Saturn* reappears after conjunction with the Sun.

*Uranus* was in conjunction with the Sun on December 30th and became a morning star, but remains too close for naked-eye view until late in February. It is in the constellation *Sagittarius,* and moves about 3° westward north of the stars in the handle end of the "milk-dipper" group.

*Neptune* is in opposition with the Sun on January 2d. It is in *Gemini,* east of *Jupiter,* but is far too faint to be seen without a telescope.

## (FIFTY-THIRD) AWARD OF THE DONOHOE COMET-MEDAL.

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to W. R. BROOKS, astronomer, Geneva, New York, for his discovery of an unexpected comet on January 26, 1906.

Committee of the Comet-Medal:

W. W. CAMPBELL,
CHAS. BURCKHALTER,
C. D. PERRINE.

SAN FRANCISCO, November 19, 1906.

## (FIFTY-FOURTH) AWARD OF THE DONOHOE COMET-MEDAL.

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to A. KOPFF, astronomer, Heidelberg, Germany, for his discovery of an unexpected comet on March 3, 1906.

Committee of the Comet-Medal:

W. W. CAMPBELL,
CHAS. BURCKHALTER,
C. D. PERRINE.

SAN FRANCISCO, November 19, 1906.

## (FIFTY-FIFTH) AWARD OF THE DONOHOE COMET-MEDAL.

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to D. Ross, astronomer, Melbourne, Australia, for his discovery of an unexpected comet on March 17, 1906.

Committee of the Comet-Medal:

W. W. Campbell,
Chas. Burckhalter,
C. D. Perrine.

San Francisco, November 19, 1906.